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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/056,777 | 01/24/2002 | Lev Bromberg | 01064 | 4587 |
| 7590 02/24/2005 | | | | |
| Michelle B. Lando, Esq. CABOT CORPORATION Law Department 157 Concord Road Billerica, MA 01821 | | | EXAMINER SHOSHO, CALLIE E | |
| | | | ART UNIT 1714 | PAPER NUMBER |

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,777

Applicant(s)

BROMBERG, LEV

Examiner

Callie E. Shosho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) 1,2,6,7,10 and 12-44 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20,25 and 29-41 is/are allowed.
- 6) ☒ Claim(s) 1,2,6,7,10,12-19,21-24,26-28 and 42-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The new grounds of rejection as set forth below are necessitated by applicant's amendment filed 11/17/04 and thus, the following action is final.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-2, 6-7, 10, 12-19, 21-24, 26-28, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Grezzo Page et al. (U.S. 5,708,095).

The rejection is adequately set forth in paragraph 3 of the office action mailed 5/18/04 and is incorporated here by reference.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grezzo Page et al. (U.S. 5,708,095) in view of Cooke et al. (U.S. 6,110, 994).

Grezzo Page et al. disclose ink jet ink comprising aqueous liquid vehicle, modified pigment, and hydrophobically modified polyelectrolyte, i.e. graft copolymer. There is also

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disclosed a method of generating an image comprising incorporating the ink into ink jet printer, jetting the ink onto substrate, and generating an image (col.2, line 54-col.5, line 21, col.6, line 35, col.6, line 61-col.7, line 3, and col.7, lines 7-15).

The difference between Grezzo Page et al. and the present claimed invention is the requirement in the claims of specific modified pigment.

Cooke et al. disclose modified pigment comprising pigment having attached group of the formula $\text{Ar-CO}_2\text{-R}$ where Ar is aromatic group, CO_2 corresponds to presently claimed spacer group, and R is polymer such as polyamide or polyester. Cooke et al. further disclose that such pigments are suitable for use in aqueous coatings (col.1, lines 60-67, col.4, lines 4-9 and 19-22, col.10, lines 57-64, and col.13, lines 7-10). The motivation for using such pigments is that they possess improved dispersability and can improve colorfastness and abrasion resistance of the coatings (col.21, lines 54-57). It is noted that colorfastness and abrasion resistance are properties particularly relevant to ink compositions where it is important that the ink does not fade with time or is able to be smudged or removed from paper on which it is printed.

In light of the motivation for using specific pigment disclosed by Cooke et al., it therefore would have been obvious to one of ordinary skill in the art to use such pigment in the ink of Grezzo Page et al. in order to produce ink with good colorfastness and abrasion resistance, and thereby arrive at the claimed invention.

Response to Arguments

6. Applicant's arguments filed 11/17/04 have been fully considered but they are not persuasive.

Specifically, applicant argues that:

(a) Grezzo Page et al. is not a relevant reference against the present claims given that Grezzo Page et al. do not disclose modified pigment as presently claimed.

(b) Grezzo Page et al. do not disclose gelling agent incorporated onto substrate as required in present claim 26.

(c) Grezzo Page et al. do not disclose specific hydrophobically modified polyelectrolyte as required in newly added claim 42 or specific modified pigment as required in newly added claims 43-44.

With respect to argument (a), applicants argue that Grezzo Page et al. disclose the use of conventional acidic carbon black not pigment having attached organic group that comprises at least one ionic group as presently claimed.

However, while it is agreed that Grezzo Page et al. disclose the use of acidic pigment, it is noted that the description of such pigment as found in col.6, line 67-col.7, line 7 of Grezzo Page et al. is a carbon black having carboxylic groups on its surface. Thus, given that Grezzo Page et al. disclose pigment having attached ionic group, i.e. carboxylic acid, it would appear that the pigment of Grezzo Page et al. meets the requirements of the present claims which only require organic group, i.e. ionic group such as carboxylic acid group, attached to pigment. That

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is, the pigment of Grezzo Page et al. and the pigment of the present claims both appear to possess the same attached group, i.e. carboxylic acid and thus, Grezzo Page et al. remains a relevant reference against the present claims.

With respect to argument (b), applicant argues that Grezzo Page et al. do not meet the limitations of present claim 26 given that there is no disclosure that the gelling agent is incorporated onto a substrate.

However, it is noted that claim 1, on which claim 26 depends, discloses that the ink comprises gelling agent, while claim 26 requires that the gelling agent is incorporated onto a substrate. Since the ink of Grezzo Page et al. is ejected from ink jet printer onto a substrate, it would appear that Grezzo Page et al. do meet the limitation of claim 26, i.e. the ink is printed onto the substrate and thus, incorporated onto the substrate. Thus, it is not clear why applicants argue that Grezzo Page et al. do not meet the requirement of claim 26. Clarification is requested.

With respect to argument (c), applicants argue that Grezzo Page et al. do not disclose the specific hydrophobically modified terpolymer required in newly added claim 42.

However, it is noted that Grezzo Page et al. disclose graft copolymer wherein the side chain is obtained from styrene and ethoxytriethyleneglycol methacrylate and is in the form of a macromonomer while the backbone is obtained from monomers including (meth)acrylic acid and ethyl acrylate (col.3, lines 43 and 48-54, col.4, lines 15 and 60, and col.4, line 65-col.5, line 3). Thus, it appears that Grezzo Page et al. do disclose polymer as required in present claim 42.

Further, with respect to newly added claim 43 and 44, it is agreed that there is no disclosure in Grezzo Page et al. of specific modified pigment as required in these claims. This is why Grezzo Page et al. is combined with Cooke et al., which discloses modified pigment identical to that required in present claims 43 and 44.

Allowable Subject Matter

7. Claims 20, 25, and 29-41 are allowable over the “closest” prior art Grezzo Page et al. (U.S. 5,708,095) for the following reasons.

Grezzo Page et al. disclose ink jet ink comprising aqueous liquid vehicle, modified pigment, and gelling agent, i.e. hydrophobically modified polyelectrolyte, i.e. graft copolymer. There is also disclosed a method of generating an image comprising incorporating the ink into ink jet printer, jetting the ink onto substrate, and generating an image

However, the graft copolymer has molecular weight of 1,000-100,000 which is in direct contrast to present claim 20 which requires molecular weight of 300,000-1,500,000. Further, there is no disclosure or suggestion in Grezzo Page et al. of gelling agent which is incorporated into second jettable composition as required in present claim 25.

Additionally, there is no disclosure or suggestion in Grezzo-Page et al. of method of incorporating into printing apparatus ink jet ink comprising liquid vehicle, colorant, and gelling agent, jetting the ink, and generating image onto substrate wherein the method further comprises the step of (i) jetting a gelling composition or (ii) increasing temperature to cause gelling of the image or to evaporate a portion of the liquid vehicle to cause gelling of the image.

Further, claims 38-41 are allowable over Grezzo-Page et al. given that there is no disclosure or suggestion in Grezzo-Page et al. of (i) method comprising incorporating into printing apparatus ink jet ink comprising liquid vehicle and colorant which is modified pigment having attached organic group, incorporating into printing apparatus gelling agent composition comprising liquid vehicle and gelling agent which is hydrophobically modified polyelectrolyte, jetting ink and gelling agent composition onto substrate, and generating image or (ii) method comprising incorporating into printing apparatus ink comprising liquid vehicle and colorant which is modified pigment having attached organic group and jetting the ink onto substrate which comprises gelling agent that is hydrophobically modified polyelectrolyte.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

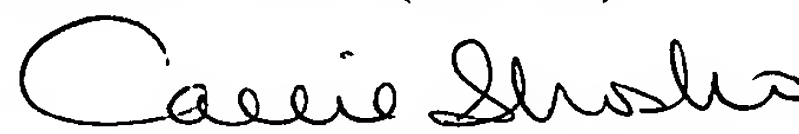
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
2/21/05